

Notes on Variation in *ASTACOPSIS SERRATUS*, Shaw.

(Plate xliii.)

The common Crayfish or Fresh-water Lobster of Eastern and Southern New South Wales and Victoria undergoes considerable alteration in its armature and ornamentation during transition from the young to the adult stages. It is also subject to considerable variation at all ages, but particularly when about 100mm. long, at which size it begins to develop the large tubercles and spines which are characteristic of full-grown specimens.

The species is represented in the Australian Museum collection by a fine series of over seventy specimens from various parts of New South Wales, which are well graduated in size. The smallest specimens, 45mm. long (measured from the end of the rostrum to that of the telson), have the carapace nearly smooth, but it gradually becomes granular as they increase in size until a length of about 95mm. is attained, when larger tubercles and spines begin to make their appearance. Twenty full-grown examples, 160-260mm. long, are the typical *A. serratus* as figured by Shaw¹, with large spines or tubercles on the posterior half of the carapace, and numerous stout spines on the abdomen.

Some examples of intermediate size, measuring up to 132mm. in length, have not developed the armature characteristic of the adult stages, but have the hinder portion of the carapace granular and the abdomen without spines as is typical of younger specimens; the lateral edges of the rostrum also are nearly smooth instead of strongly dentate as usual. These belong to the variety described and figured by Dana as *A. nobilis*², but they do not appear to attain a large size, and perhaps develop into the typical form with increased age. Still others from near Stanthorpe, Southern Queensland, have the general characters of the variety *nobilis* but have the rostrum very large and broader than is usual in the species.

¹ Shaw—Zool. N. Holland, 1794, p. 21, pl. viii.

² Dana—Wilkes U.S. Explor. Exped., Crust., i., 1852, p. 526, pl. xxxiii., fig. 3.

Twelve specimens, 62-82mm. long, differ from all others in the collection in having the whole carapace, abdomen, and appendages markedly hirsute, while the rostrum is narrower than is usual, though a careful comparison with others of the typical form and of similar size fails to reveal any further characters to distinguish them. They were obtained in the Belmore Falls Creek, which runs into the Kangaroo River, New South Wales, and were presented to the Australian Museum by Professor W. A. Haswell, F.R.S. He discovered a new commensal worm, *Temnocephala*, *sp.*, associated with them, which is distinct from any found elsewhere, and he suggests that this fact is of some importance as indicating at least long isolation from their nearest allies. In the absence of larger specimens, however, and considering that they exhibit no differentiating structural characters it seems best to regard these example as representing only a variety of *A. serratus*, which may be distinguished by the name *hirsutus*.

The colour variations of *A. serratus* are very striking, but cannot be investigated without the examination of a large series of fresh specimens from many localities. Some examples from the Blue Mountains are bright pink in life as in Shaw's original figure. McCoy³ describes and figures Murray River specimens as light blue, while adults from around Sydney are largely dark green ornamented with deep blue and red.

Astacopsis serratus is known from the Murray River and its tributaries (Haswell⁴, McCoy⁵, Smith⁶, Austr. Mus.); Yarra, Plenty and Bunyip Rivers, Victoria (Smith); Blue Mountains, New South Wales (Haswell, Smith, Austr. Mus.); Parramatta and near Sydney (Smith, Austr. Mus.); Mt. Kosciusko (Austr. Mus.); various coastal localities from Bundanoon and Wollongong to Barrington Tops and Dorrego, New South Wales (Austr. Mus.); ? Richmond River (Haswell); Lyra, near Stanthorpe, Queensland (Austr. Mus.).

³ McCoy—Prodr. Zool. Vict., Dec. ii., 1878, pl. xv.

⁴ Haswell—Cat. Austr. Crust., 1882, p. 174.

⁵ McCoy—Prodr. Zool. Vict., Dec. ii., 1878, pl. xv.

⁶ Smith—Proc. Zool. Soc., 1912, p. 157, pls. xvi.-xviii.